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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/614,132 | 07/08/2003 | Ananth G. Somayaji | TI-35575 | 6001 |
| 23494 | 7590 | 09/13/2005 | | |
| TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265 | | | EXAMINER GARBOWSKI, LEIGH M | |
| | | | ART UNIT 2825 | PAPER NUMBER |

DATE MAILED: 09/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

10/614,132

Applicant(s)

SOMAYAJI ET AL.

Examiner

Leigh Marie Garbowski

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-8 and 11-13 is/are rejected.
- 7) ☒ Claim(s) 1, 4-6, 9-11, 14 and 15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "trapezoid signal" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 1, 4, 6, 9, 11, 14 are objected to because of the following informalities: as per claims 1, 6, 11, taking claim 1 as exemplary, "short" [line 7] should be changed to --shorter-- and --the-- should be inserted after "to" [line 7], or similar amendments should be made, to clarify the language; as per claims 4, 9, 14, taking claim 4 as exemplary, "T" [lines 6 and 8] is not defined in the claim, a notation that "T" represents periodicity [page 9, lines 8-10] should be added to the language. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 6-8, 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagaraj et al. ["A Practical Approach to Static Signal Electromigration Analysis"].

As per claims 1-3/6-8/11-13, a method/medium/apparatus comprising: modeling said driver cell in the form of a trapezoid signal and said signal lead in the form of an impedance network, wherein one parallel end of said trapezoid signal is substantially shorter compared to the other parallel end of said trapezoid signal, wherein said one parallel end contains a single point such that said trapezoid signal comprises a triangle signal; wherein said modeling comprises: receiving a first plurality of parameters characterizing operation of said driver cell; and computing a second plurality of parameters characterizing said triangle signal based on said first plurality of parameters [section 3, 4, 6.2, 7; it is noted that trapezoid and triangle waveforms are available in SPICE]; simulating an operation of said IC by providing said trapezoid signal as an input to said impedance network [section 3.1, 3.4, 4]; and measuring electrical signals on said impedance network to estimate said plurality of current density parameters on said signal lead [Abstract, 4].

Claims 1-3, 6-8, 11-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Gentry et al. [U.S. Patent #6,857,113 B2].

As per claims 1-3/6-8/11-13, a method/medium/apparatus comprising: modeling said driver cell in the form of a trapezoid signal and said signal lead in the form of an impedance network, wherein one parallel end of said trapezoid signal is substantially shorter compared to the other parallel end of said trapezoid signal, wherein said one parallel end contains a single point such that said trapezoid signal comprises a triangle signal; wherein said modeling comprises: receiving a first plurality of parameters

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characterizing operation of said driver cell; and computing a second plurality of parameters characterizing said triangle signal based on said first plurality of parameters [column 3, lines 22-23, 30-33; column 8, line 40-column 10, line 58]; simulating an operation of said IC by providing said trapezoid signal as an input to said impedance network [column 3, line 51-column 4, line 63; column 5, lines 60-63; column 8, line 40-column 10, line 58]; and measuring electrical signals on said impedance network to estimate said plurality of current density parameters on said signal lead [column 3, lines 43-50; column 8, lines 40-column 10, line 58].

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sasaki et al. [U.S. Patent #6,598,208 B2] disclose prior art that uses a trapezoidal signal to analyze current density [figure 2]. Donohoe et al. ["Simple Edge Basis Functions for Open-Ended Bodies of Revolution"] disclose a modified triangle function used in the method of moments solution for surface currents.

Allowable Subject Matter

Claims 4-5, 9-10, 14-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: although the prior art of record discloses a triangle signal contains a positive peak and a negative peak, and the plurality of parameters recited, the prior art of record does not disclose or teach the parameters computed according to the equations, as recited in combination with all of the features of the claims recited in total.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leigh Marie Garbowski whose telephone number is 571-272-1893 and e-mail is Leigh.Garbowski@uspto.gov.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LEIGH M. GARBOWSKI
PRIMARY EXAMINER